PGR Open Day 2022

Faculty of Science & Engineering

Akram Alomainy
Deputy Dean for Postgraduate Research (S&E)
Queen Mary Doctoral College
E-mail: a.alomainy@qmul.ac.uk
Introductions to the Faculty

• The Faculty of Science and Engineering consists of
  o 5 Schools
  o 4 interdisciplinary institutes and networks
  o Over 320 academic research staff
  o >900 PhD students

  ▪ 97% of research outputs at least ‘internationally excellent’, with half at the top 4-star ‘world-leading’ rating.
  ▪ Attracted over £150m in funding in last 5 years
  ▪ Recognised for our distinctive, curiosity-driven and applied research
  ▪ Research supported by world-class research infrastructure
  ▪ Entrepreneurship and innovation embedded in our research culture
Our Faculty

Faculty of Science & Engineering (S&E)
- School of Mathematical Sciences (SMS)
- School of Physical and Chemical Sciences (SPCS)
- School of Engineering & Materials Science (SEMS)
- School of Electronic Engineering & Computer Science (EECS)
- School of Biological and Behavioural Sciences (SBBS)

Cross-faculty networks/institutes
- Bioengineering Network
- Material Research Network
- Digital Environment Research Institute
- Centre for Urban Transport Technology

Science and Engineering

"Queen Mary University of London conducts world-class science and engineering research delivering fundamental knowledge and translational impact to benefit society."

Professor Martin Knight
Dean for Research, Faculty of Science and Engineering
Research Excellence in the Faculty

- 7th in the UK for research quality in last national assessment
- NERC Doctoral Training Partnership
  - (UCL, KCL, Kew Gardens, and the Natural History Museum)
- 2 X BBSRC Doctoral Training Partnership
  - LIDO with UCL, KCL and industry
  - Collaborative Training Partnership led by Industry
- 4 x EPSRC Centre for Doctoral Training
  - Data-Centric Engineering
  - Media Arts Technology
  - AI in Music
  - Intelligent Games
- STFC Centre for Doctoral Training in fundamental physics and data intensive science
- Athena Swan accreditation for all Schools.
- Successful spin-out companies; Apatech, Chatterbox, Actual Experience ..
Faculty Vision

• Be recognised as one of the leading science and engineering faculties in the UK, ambition to be ranked in the top 10 universities in the UK

• Have an international reputation for cutting edge research and education, which attracts the best staff and students, and gives them the freedom to excel

• Offer students an education responsive to their personal aspirations and prepares them for leading roles in society

• Have a culture of flexibility and innovation, which embraces diversity, which empowers academic leadership and where excellence is rewarded.
PGR Student Role in The Vision

• You will be part of the vision
• Creating knowledge is our core business - this is what we do!
• We will work with you - investment of almost £100,000 each
• Research quality of Queen Mary is largely the research conducted by PGR
• Your success is our goal!
Our Faculty
Research & Impact
Impact - Contribution to economy & society

Policy on biodegradable plastics

- Informed European Commission regulations

US$26m per year

- Estimated savings from the use of AttraX™ bone biomaterial based on QM research

1st in the world ‘on-the-fly’ modelling of radiation damage

- ‘On-the-fly’ molecular dynamics simulation software to model radiation damage on materials

Solving software bugs for Facebook, Amazon, Spotify, Uber, Mozilla, Sky, M&S

- Using automated program analyser that can find complex problems using separation logic and bi-abductive inference

Reduced new malaria cases by 27m

- Through advanced modelling to advise international investment in antimalarial interventions
Malaria is one of the leading global causes of death and morbidity, infecting 230,000,000 and killing over 440,000 people per year.

Using mathematical modelling, J. Griffin evaluated the costs and benefits of four leading malaria intervention strategies.

One would think it is only a better version of blu tack
DIALOG+ App

- DIALOG+ App - structures patient-clinician conversations to elicit patients' views on treatment & quality of life
- Improves quality of life, reduces symptoms, and achieves a better outcome for independent living and relationships.
- Recommended for use in the mandatory evaluation of all adult patients in various NHS Trusts
- Benefitting several thousand patients in the UK every day
- Translated to 15+ languages and used in 10+ countries
Reducing illegal poaching of sea turtles to 1.3% in 2020

From 38.3% of the nesting population in 2008, contributing to dramatic increases in turtle numbers on Cabo Verde from ~4,100 to >60,000

Discovery of exoplanet Proxima b

Within the habitable zone in its own solar system, where liquid water can exist – and possibly could harbor life; plans are afoot to send unmanned spacecraft to explore

One of the world’s most innovative companies in music – LANDR

Providing online intelligent music production service and the 1st company in the world to bring AI and machine learning to audio production
Breakout Sessions

5 Breakout Sessions

• Please join the session relevant to your research interest and PGR degree programme of interest

  o **EECS**: School of Electronic Engineering and Computer Science
  o **SEMS**: School of Engineering and Material Sciences
  o **SMS**: School of Mathematical Sciences
  o **SPCS**: School of Physical and Chemical Sciences
  o **SBBS**: School of Biological and Behavioural Science
Thank You